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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,886	03/26/2001	Otto Pulkkinen	796.385USW1	8881

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EXAMINER	
NGUYEN, STEVEN H D	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,886	PULKKINEN ET AL.	
	Examiner	Art Unit	
	Steven HD Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/01, 1/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over The admitted prior arts in view of Patsiokas (USP 5285443).

Regarding claim 1, The admitted prior arts (Figs 1-4 and Page 1, lines 9 to page 5, lines 32) discloses a method of synchronizing transmission and reception periods of a group of terminals in a fixed radio link system operating in time division duplex mode and in which the group of terminals is located in a hub site. However, The admitted prior arts fail to disclose the steps of choosing a radio frequency to be used by all terminals in the group; timing transmit periods of every individual terminal in the group in such a manner that the transmission periods do not overlap with reception periods of the other terminals. In the same field of endeavor,

Patsiokas discloses (Figs 1-6 and col. 1, line 5 to col. 10, line 2) a method and system for synchronizing the terminals in the network which operates TDD by choosing a radio frequency to be used by all terminals in the group; timing transmit periods of every individual terminal in the group in such a manner that the transmission periods do not overlap with reception periods of the other terminals (See Abstract and col. 1, lines 30 to col. 2, lines 8; col. 2, lines 22-43, col. 3, lines 50-60, col. 6, lines 1-26, the devices transmit at the same time and receive at the same time).

Since a method and system for synchronizing the terminals which operates TDD are well known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to implement a master device and the slave devices and synchronizing the slave devices with the master device by transmitting timing information to adjust the transmit and receive cycle of the devices in order to allow the devices transmit at the same time and receive at the same time as disclosed by Patsiokas's system and method into the admitted prior arts. The motivation would have been to remove interference and throughput of the system.

Regarding claims 2-8, The admitted prior arts (Figs 1-4 and Page 1, lines 9 to page 5, lines 32) a method of synchronizing transmission and reception periods of a group of terminals in a fixed radio link system operating in time division duplex mode and in which the group of terminals is located in a hub site. However, the admitted prior arts fail to disclose the steps of arranging a common bus; choosing one terminal from the group as a super master terminal which sends a synchronization signal to the common bus; choosing the rest of the terminals

from the group as master terminals which receive the synchronization signal from the common bus; timing transmission periods of every individual master terminal in accordance with the synchronization signal received from the common bus in such a manner that the transmission periods overlap neither with reception periods of the other master terminals, nor with those of the super master terminal. In the same field of endeavor, Patsiokas discloses (Figs 1-6 and col. 1, line 5 to col. 10, line 2) a method and system for synchronizing the terminals in the network which operates TDD by arranging a common bus; choosing one terminal from the group as a super master terminal which sends a synchronization signal to the common bus (Fig 1, Ref 108); choosing the rest of the terminals from the group as master terminals which receive the synchronization signal from the common bus; timing transmission periods of every individual master terminal in accordance with the synchronization signal received from the common bus in such a manner that the transmission periods overlap neither with reception periods of the other master terminals, nor with those of the super master terminal; adding on the synchronization signal information about the radio frequency used by the super master terminal; sending synchronization information from the master terminal to the remote terminal at the opposite end of the radio link; timing transmission and reception periods of the remote terminal in accordance with received synchronization; tuning the radio frequency of the transceivers of the master terminals to the frequency announced by the super master terminal via the common bus (See Abstract and col. 1, lines 30 to col. 2, lines 8; col. 2, lines 22-43, col. 3, lines 50-60, col. 6, lines 1-26); wherein upon addition of a new terminal in the group, further comprising; engaging the new terminal with the common bus; receiving the synchronization signal and information about the radio frequency from the common bus; carrying out the timing and frequency tuning in the

new terminal according to the synchronization signal and information about the radio frequency (implicitly discloses in time division duplex to allow a new terminal to tune to the channel in order to receive timing information and channel); missing the synchronization signal on the common bus, further comprising: choosing automatically one of the master terminals as a new super master terminal (Col. 7, line 20 to col. 8, lines 57).

Since a method and system for synchronizing the terminals which operates TDD are well known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to implement a master device and the slave devices and synchronizing the slave devices with the master device by transmitting timing information to adjust the transmit and receive cycle of the devices in order to allow the devices transmit at the same time and receive at the same time as disclosed by Patsiokas's system and method into the admitted prior arts. The motivation would have been to remove interference and throughput of the system.

Regarding claim 9, The admitted prior arts (Figs 1-4 and Page 1, lines 9 to page 5, lines 32) a fixed radio link system operating in time division duplex mode comprising at least one hub site including a plurality of hub transceivers operating at the same radio frequency; a plurality of directive and sectored aerials pointing in different directions, each aerial being connected to the respective transceiver. However, the admitted prior arts fail to disclose the steps of transmission periods and reception periods of the hub transceivers are mutually synchronized in such a manner that the transmission periods of any of the hub transceivers do not overlap with reception periods of the other hub transceivers. In the same field of endeavor, Patsiokas discloses (Figs 1-6 and col. 1, line 5 to col. 10, line 2) a method and system for synchronizing the

terminals in the network which operates TDD by mutually synchronizing steps of transmission periods and reception periods of the hub in such a manner that the transmission periods of any of the hub transceivers do not overlap with reception periods of the other hub transceivers (See Abstract and col. 1, lines 30 to col. 2, lines 8; col. 2, lines 22-43, col. 3, lines 50-60, col. 6, lines 1-26, the devices transmit at the same time and receive at the same time).

Since a method and system for synchronizing the terminals which operates TDD are well known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to implement a master device and the slave devices and synchronizing the slave devices with the master device by transmitting timing information to adjust the transmit and receive cycle of the devices in order to allow the devices transmit at the same time and receive at the same time as disclosed by Patsiokas's system and method into the admitted prior arts. The motivation would have been to remove interference and throughput of the system.

Regarding claims 10-16, The admitted prior arts (Figs 1-4 and Page 1, lines 9 to page 5, lines 32) a fixed radio link system operating in time division duplex mode comprising at least one hub site including a number of hub transceivers operating at the same radio frequency (Fig 4); a number of directive and sectored aerials pointing in different directions, each aerial being connected to the respective transceiver; a plurality of remote stations each having at least one remote transceiver communicating with a predetermined hub transceiver through a radio link (Fig 4). However, the admitted prior arts fail to disclose a common bus to which the hub transceivers are connected; a super master transceiver which is selected from the hub transceivers and which sends a synchronization signal to the common bus; master terminals

which are the rest of the hub transceivers and which receive the synchronization signal from the common bus; wherein every individual master terminal sets the timing of transmission periods in accordance with the synchronization signal received from the common bus in such a manner that the transmission periods overlap neither with reception periods of the other master terminals nor with those of the super master terminal. In the same field of endeavor, Patsiokas discloses (Figs 1-6 and col. 1, line 5 to col. 10, line 2) a method and system for synchronizing the terminals in the network which operates TDD by using a common bus (Fig 1, Ref 108) to which the hub transceivers are connected; a super master transceiver which is selected from the hub transceivers and which sends a synchronization signal to the common bus; master terminals which are the rest of the hub transceivers and which receive the synchronization signal from the common bus; wherein every individual master terminal sets the timing of transmission periods in accordance with the synchronization signal received from the common bus in such a manner that the transmission periods overlap neither with reception periods of the other master terminals nor with those of the super master terminal (See Abstract and col. 1, lines 30 to col. 2, lines 8; col. 2, lines 22-43, col. 3, lines 50-60, col. 6, lines 1-26, the devices transmit at the same time and receive at the same time); the super master transceiver sends information about the radio frequency used by the super master transceiver to the common bus (implicitly discloses because the other device must know the frequency before tuning to the frequency); the master terminals send synchronization information to the corresponding remote terminals at the opposite ends of the radio links (col. 4, lines 23-43); the remote terminals correct their timings responsive to the received synchronization information (Col. 4, lines 44-59); upon addition of a new transceiver to the hub site: the new transceiver engages itself to the common bus for receiving the

synchronization signal therefrom; in response to said signal carries out timing (implicitly discloses because any new device will receive timing information in order to adjust its timing in order the devices are synchronize with each other); in response to disappearance of the synchronization signal from the common bus one of the master transceivers automatically changes into the super master transceiver (Col. 8, lines 36-58); the master transceiver turns itself to the radio frequency only when interference caused by external sources is below a predetermined level (implicitly discloses because the devices must synchronize with each other to remove the interference from the external sources when they transmit or receive).

Since a method and system for synchronizing the terminals which operates TDD are well known and expected in the art at the time of invention was made. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to implement a master device and the slave devices and synchronizing the slave devices with the master device by transmitting timing information to adjust the transmit and receive cycle of the devices in order to allow the devices transmit at the same time and receive at the same time as disclosed by Patsiokas's system and method into the admitted prior arts. The motivation would have been to remove interference and throughput of the system.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Candy (USP 5347562) discloses a method and system for synchronizing the groups of base stations which operates in TDD by using an external source.

Lenzo (USP 6587444) discloses a method and system for supporting a communicate between base and terminals in TDD.

Yahata (USP 6480483) discloses a method and system for synchronizing the groups of base stations which operates in TDD.

Kondo (USP 5293380) discloses a method and system for synchronizing the groups of base stations.

Schnizlein (USP 5898685) discloses a method and system for synchronizing transceiver pairs.

Nakahara (USP 5473668) discloses a method and system for synchronizing the groups of base stations.

Scot (USP 6094421) discloses a method and system for synchronizing the base and terminals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven HD Nguyen
Primary Examiner
Art Unit 2665
11/13/04